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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/062,200	10/29/2001	Teresa Lechner-Fish	1787-10100	9865

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EXAMINER

CYGAN, MICHAEL T

ART UNIT PAPER NUMBER

2855

DATE MAILED: 04/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/062,200

Applicant(s)

LECHNER-FISH, TERESA

Examiner

Michael Cygan

Art Unit

2855

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 March 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12, 14-18, 20 and 21 is/are rejected.
- 7) ☒ Claim(s) 13 and 19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 10 March 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1, 6, 7, 10-12, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Sides (US 4,805,441). Sides discloses the claimed invention, a gas chromatograph comprising a separation column [17], upstream valve switch [11], further upstream carrier [12] and sample (Figure 1) sources, column heater [24], and preconcentrator heater [15]; see column 3, lines 4-43. The preconcentrator heater is heated to a desired temperature of 200 C; the column heater is heated to about 120 C; see column 4, lines 4-29. The carrier gas stream travels through the separation column where it is cooled by a fan [26]; column 3, lines 31-33. The preconcentrator heater is controlled by a programmable computer to a series of predetermined temperatures (i.e., ambient and 200 C); see column 3, lines 44-50, Figure 5, and column 4, lines 4-9. The constituent concentrations are then analyzed (column 3, lines 44-50). A second valve [17] is downstream of the carrier gas inlet valve [11]. See also entire document.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 2-5, 17, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sides (US 4,805,441) in view of Sacks (US 5,205,845). Sides teaches the claimed invention except for the use of a back pressure restrictor formed of capillary tubing upstream of column and upstream of valve switch. Sacks teaches a valve [12] for a gas chromatograph having two capillary tubes which act to restrict back pressure. One tube [40] is placed upstream of the column; see Figures 1-2 and column 5, lines 1-11. The second tube [18] is placed upstream of the valve switch; see Figures 1-2 and column 4, lines 13-15. It would have been obvious to one having ordinary skill in the art to use a valve switch having capillary inlets acting as back pressure restrictors as taught by Sacks in the invention of Sides to comprise the injection valve, since Sacks teaches that such a valve switch would provide "low maintenance, repeated injections" and be "ideal for high speed gas chromatography"; see column 5, lines 45-57.

3. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sides (US 4,805,441) in view of Staples (US 5,970,803). Sides teaches the claimed invention except for a housing surrounding second heater and cooling means. Staples teaches a gas chromatograph having a preconcentrator in which both are surrounded by a housing; see Figure 2; column 3, lines 34-49; column 4, lines 10-16. It would have been obvious to one having ordinary skill in the art to use a housing to enclose a GC-preconcentrator system as taught by Staples in the invention of Sides to enclose the system, since this will protect the system components from adverse environmental effects.
4. Claims 14-16 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sides (US 4,805,441) in view of Karas (US 4,095,455). Sides teaches the claimed invention except for a backpressure regulator downstream of a capillary column. Karas teaches the use of a backpressure regulator downstream of a capillary column in a gas chromatograph having a pneumatic detector (Figure 1). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a pneumatic detector comprising a backpressure regulator downstream of a capillary column as taught by Karas in the invention of Sides to regulate the pressure in the device, since Karas teaches that the pneumatic detector does not have the

drawbacks (cost, inadequate reliability, potential danger) of the detection device of Sides (flame photometric, i.e. ionization, detector); see Karas column 1, lines 30+.

***Allowable Subject Matter***

5. Claims 13 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
6. The following is a statement of reasons for the indication of allowable subject matter: the claims recite the step or ability to heat the carrier gas about 5-10 degrees Celsius above the column temperature, which is neither disclosed nor fairly taught in the prior art.

***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Berger (US 5,322,627) and Roof (US 3,935,097) disclose a backpressure regulator downstream of the column in a chromatography systems. Stearns (US 4,300,393) and Murukami (US 5,402,668) disclose backpressure regulators in gas chromatography.
8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE**

**FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

9. A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

### ***Response to Arguments***

10. Applicant's arguments filed 10 March 2003 have been fully considered but they are not persuasive.
11. Applicant argues that the Sides reference may not, under some circumstances, heat the carrier gas above that of the column since the gas is merely passing through a heated tube. However, applicant has shown that passing carrier gas through a heated tube is an accepted prior art method of providing heated carrier gas to a gas chromatography system; see applicant's prior art Figure 4 and description at page 9, paragraph [0026]. Furthermore, the heated tube of Sides is packed with a solid

sorbent (column 2, lines 65-68), thus forcing the carrier gas through a tortuous heated path. Sides states that the sorbent (not merely the tube) is heated to a temperature of 200 Celsius while the carrier gas is passed through to thermally desorb particles from the solid sorbent (column 4, lines 4-9). Therefore, the gas must be very near the desired sorbent temperature or the sorbent would not be heated to the desired temperature. If the sorbent does not reach the desired temperature, the preconcentrator would be inoperative. Therefore, it is inherent in Sides that the carrier gas is heated near the sorbent temperature. Finally, note that the apparatus claims require only a "heater for heating...", which requires only that the reference disclose a heater which is capable of performing the intended use of heating to a desired temperature.

12. For the same reasons as above, the fan which cools the column also cools the carrier gas stream while the carrier gas stream passes through the column.

13. With respect to applicant's statement that the second heater does not heat the carrier gas to a series of predetermined temperatures in the invention disclosed by Sides, note particularly Figure 5 of Sides, which shows the heater being operated to cause the carrier gas to be at ambient temperature, then at the desired heated temperature, then at ambient



temperature; see also column 4, lines 4-9 and 43-47, which notes that the preconcentrator tube receives another sample following the desorption; since the preconcentrator (sorbent) tube only absorbs compounds when cool (below the compound desorption temperature), the preconcentrator tube is caused by the heater to go through multiple cool-heat-cool cycles.

14. With respects to applicant's statement that the tube [40] is not upstream of the column as claimed, the examiner notes that the placement of the tube is made exactly for backpressure restriction upstream of the column. The inlet of the tube [40] is upstream of the column. The tube [40] acts to restrict the flow of air caused by excess pressure upstream of the column; and therefore meets the claimed limitations. The claim does not require, for instance, an in-line backpressure restrictor, merely the location of the restrictor upstream of the column.

15. With respect to the remainder of applicant's disagreements on page 10 of the response, the valve set forth in the rejection by Sacks is valve [12] as shown in Figure 2. Furthermore, capillary tubes are inherently pressure restrictive regardless of their length, and are "effective" in that they perform their function of directing gas flow.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Cygan whose telephone number is 703-305-0846. The examiner can normally be reached on 8:30-6 M-Th, alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on 703-305-4816. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

MTC

Michael Cygan  
March 26, 2003

  
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